CLAIMS

We claim:

1. A wavefront aberration correcting device for correcting a wavefront aberration of light generated in an optical path of an optical system for irradiating light onto a recording medium or guiding reflected light reflected by the recording medium, the device comprising:

a pair of opposing transparent electrode layers provided in the optical path; and

a liquid crystal sandwiched between the transparent electrode layers, the liquid crystal generating phase change in passing light due to voltage applied to the transparent electrode layers,

wherein at least one of the transparent layers is arranged on an antireflective body comprising a substrate, and a finestructure which is formed on the substrate and which has a concave-convex structure.

2. The wavefront aberration correcting device according to Claim 1, wherein the concave-convex structure is formed in a one-dimensional and/or a two-dimensional shape.

3. The wavefront aberration correcting device according to Claim 1 or 2, wherein when the concave-convex structure has a periodically changing structure , a pitch of the concave-convex structure is no more than 500nm.

4. The wavefront aberration correcting device according to any one of Claims 1 to 3, wherein the antireflective body comprises the substrate and the

finestructure that are both formed from either a glass or a resin, and the substrate and the finestructure are integrally formed.

5. The wavefront aberration correcting device according to any one of Claims 1 to 4, wherein the antireflective body comprises the substrate formed from a glass and the finestructure formed from a resin.

6. The wavefront aberration correcting device according to any one of Claims 1 to 5, wherein the antireflective body comprises the substrate formed from a resin and the finestructure formed from a glass.

7. The wavefront aberration correcting device according to any one of Claims 1 to 6, further comprising an alignment film provided between the transparent electrode layer and the liquid crystal.

8. The wavefront aberration correcting device according to any one of Claims 1 to 7, wherein the transparent electrode layer comprises an ITO layer that is an oxide of indium and tin.

9. The wavefront aberration correcting device according to any one of Claims 1 to 8, wherein the transparent electrode layer is partitioned into pixels.

10. The wavefront aberration correcting device according to any one of Claims 1 to 9, wherein the light is a blue semiconductor laser beam.

11. An optical pickup device comprising a light source that emits light for irradiation onto a recording medium, and an objective lens arranged between the light source and the recording medium, the objective lens converging the light from the light source onto an information recording surface of the recording medium, the optical pickup device comprising:

a wavefront aberration correcting device arranged between the light source and the objective lens, the wavefront aberration correcting device comprising a pair of opposing transparent electrode layers provided in an optical path in the optical pickup device; and a liquid crystal sandwiched between the transparent electrode layers, the liquid crystal generating phase change in passing light due to voltage applied to the transparent electrode layers,

wherein at least one of the transparent electrode layer is arranged on an antireflective body comprising a substrate, and a finestructure which is formed on the substrate and which has a concave-convex structure.

12. The optical pickup device according to Claim 11, wherein the concave-convex structure is formed in a one-dimensional and/or a two-dimensional shape.

13. The optical pickup device according to Claim 11 or 12, wherein when the concave-convex structure has a periodically changing structure, a pitch of the concave-convex structure is no more than 500nm.

14. The optical pickup device according to any one of Claims 11 to 13, wherein the antireflective body comprises the substrate and the finestructure that are both formed from either a glass or a resin, the substrate and the finestructure are integrally formed.

15. The optical pickup device according to any one of Claims 11 to 14, wherein the antireflective body comprise the substrate formed from a glass and the finestructure formed from a resin.

16. The optical pickup device according to any one of Claims 11 to 15, wherein the antireflective body comprises the substrate formed from a resin and the finestructure formed from a glass.

17. The optical pickup device according to any one of Claims 11 to 16, further comprising an alignment film provided between the transparent electrode layer and the liquid crystal.

18. The optical pickup device according to any one of Claims 11 to 17, wherein the transparent electrode layer comprises an ITO layer that is an oxide of indium and tin.

19. The optical pickup device according to any one of Claims 11 to 18, wherein the transparent electrode layer is partitioned into pixels.

20. The optical pickup device according to any one of Claims 11 to 19, wherein the light is a blue semiconductor laser beam.

ABSTRACT

An object of the present invention is to provide a wavefront aberration correcting device comprising a liquid crystal deivce that maximizes transmittance